

405 KAR 1:130. Backfilling and grading.

RELATES TO: KRS 350.093, 350.410, 350.450

STATUTORY AUTHORITY: KRS 350.028, 350.093, 350.450

NECESSITY, FUNCTION, AND CONFORMITY: KRS 350.028 requires the Environmental and Public Protection Cabinet to adopt rules and administrative regulations for the strip mining of coal. This administrative regulation sets forth requirements relating to the backfilling and grading of areas affected by strip mining operations.

Section 1. In order to achieve the approximate original contour, the permittee shall, except as provided in this administrative regulation, transport, backfill, compact (where advisable to ensure stability or to prevent leaching of toxic materials), and grade all spoil material to eliminate all high-walls, spoil piles, and depressions. The postmining graded slopes must approximate the premining natural slopes in the area as defined in Section 2(2) of this administrative regulation.

Section 2. Slope Measurements. (1) To determine the natural slopes of the area before mining, sufficient slopes to adequately represent the land surface configuration, and as approved by the cabinet in accordance with site conditions, must be accurately measured and recorded. Each measurement shall consist of an angle of inclination along the prevailing slope extending 100 linear feet above and below or beyond the coal outcrop or the area to be disturbed; or, where this is impractical, at locations specified by the cabinet. Where the area has been previously mined, the measurements shall extend at least 100 feet beyond the limits of mining disturbances as determined by the cabinet to be representative of the premining configuration of the land. Slope measurements shall take into account natural variations in slope so as to provide accurate representation of the range of natural slopes and shall reflect geomorphic differences of the area to be disturbed. Slope measurements may be made from topographic maps showing contour lines having sufficient detail and accuracy consistent with the submitted mining and reclamation plan.

(2) After the disturbed area has been graded, the final graded slopes shall be measured at the beginning and end of lines established on the prevailing slope at locations representative of premining slope conditions and approved by the cabinet. These measurements must not be made so as to allow unacceptably steep slopes to be constructed.

Section 3. Final Graded Slopes. (1) The final graded slopes shall not exceed either the approximate premining slopes as determined according to Section 2(1) of this administrative regulation or any lesser slope specified by the cabinet based on consideration of soil, climate, or other characteristics of the surrounding area. Postmining final graded slopes need not be uniform.

(2) The requirements of this section may be modified by the cabinet where the mining is re-affecting previously mined lands that have not been restored to the standards of this administrative regulation and sufficient spoil is not available to return to the slope determined according to Section 2(1) of this administrative regulation. Where such modifications are approved, the permittee shall, as a minimum, be required to:

- (a) Retain all overburden and spoil on the solid portion of existing or new benches; and
- (b) Backfill and grade to the most moderate slope possible to eliminate the highwall which does not exceed the angle of repose or such lesser slope as is necessary to assure stability.

(3) On approval by the cabinet and in order to conserve soil moisture, ensure stability, and control erosion of final graded slopes, cut-and-fill terraces may be allowed if the terraces are compatible with the postmining land use approved under 405 KAR 1:070, and are appropriate substitutes for construction of lower grades on the reclaimed lands. The terraces shall meet the following requirements:

(a) The width of the individual terrace bench shall not exceed twenty (20) feet unless specifically approved by the cabinet as necessary for stability, erosion control, or roads included in the approved postmining land use plan.

(b) The vertical distance between terraces shall be as specified by the cabinet to prevent excessive erosion and to provide long-term stability.

(c) The slope of the terrace outslope shall not exceed 1v:2h (fifty (50) percent). Outslopes which exceed 1v:2h (fifty (50) percent) may be approved if they have a minimum static safety factor of one and five-tenths (1.5) or more and provide adequate control over erosion and closely resemble the surface configuration of the land prior to mining. In no case may highwalls be left as part of terraces.

(d) Culverts and underground rock drains shall be used on terraces only when approved by the cabinet.

Section 4. Small Depressions. If approved by the cabinet, small depressions may be constructed to minimize erosion, conserve soil moisture, or promote revegetation. These depressions shall be compatible with the approved postmining land use and shall not be inappropriate substitutes for construction of lower grades on the reclaimed lands. Depressions approved under this section shall have a holding capacity of less than one (1) cubic yard of water or, if it is necessary that they be larger, shall not restrict normal access throughout the area or constitute a hazard.

Section 5. Permanent Impoundments. If approved by the cabinet permanent impoundments may be retained on mined and reclaimed areas provided all highwalls are eliminated by grading to appropriate contour and the provisions of 405 KAR 1:070 for postmining land use, 405 KAR 1:160 for protection of the hydrologic system, and 405 KAR 1:220 with regard to permanent impoundments are met. No impoundments shall be constructed on top of areas in which excess materials are deposited pursuant to 405 KAR 1:140 with regard to the disposal of excess spoil material, or in which acid-forming, toxic-forming or waste materials are deposited pursuant to 405 KAR 1:150. Impoundments shall not be used to meet the requirements of Section 9 of this administrative regulation with regard to covering of exposed coal seams, acid and toxic-forming materials, or waste materials.

Section 6. Regrading or Stabilizing Rills and Gullies. When rills or gullies deeper than nine (9) inches form in areas that have been regraded and the topsoil replaced but vegetation has not yet been established, the permittee shall fill, grade, or otherwise stabilize the rills and gullies and reseed or replant the areas in accordance with 405 KAR 1:110 with regard to revegetation. The cabinet shall specify that rills or gullies of lesser size be stabilized if the rills or gullies will be disruptive to the approved postmining land use or may result in additional erosion and sedimentation.

Section 7. Thin and Thick Overburden Areas. (1) Applicability. The provisions of this section shall apply only when operations cannot be carried out to comply with the requirements of Sections 1, 2 and 3 of this administrative regulation with regard to achieving approximate original contour.

(2) Definitions.

(a) "Initial thickness" is the sum of the overburden thickness and coal thickness.

(b) "Final thickness" is the product of the overburden thickness times the bulking factor to be determined for each mine area.

(c) "Thin overburden" exists when the final thickness is less than eight-tenths (0.8) of the initial thickness.

(d) "Thick overburden" exists when the final thickness is greater than one and two-tenths (1.2) of the initial thickness.

(3) Thin overburden areas. In strip mining operations carried out continuously in the same limited pit area for more than one (1) year from the day coal removal operations begin and where the vol-

ume of all available spoil and suitable waste materials, as defined in Section 8 of this administrative regulation, is demonstrated to be insufficient to achieve approximate original contour, operations shall be conducted to meet, at a minimum, the standards of this subsection.

(a) Transport, backfill, and grade, using all available spoil and suitable waste materials, as defined in Section 8 of this administrative regulation, from the entire mine area to attain the lowest practicable stable grade, which may not exceed the angle of repose, and to provide adequate drainage and long-term stability of the regraded areas.

(b) Eliminate highwalls by grading or backfilling to stable slopes not exceeding 1v:2h (fifty (50) percent), or such lesser slopes as specified by the cabinet to reduce erosion, maintain the hydrologic balance, or allow the approved postmining land use.

(c) Transport, backfill, grade and revegetate to achieve an ecologically sound land use compatible with the prevailing land use in unmined areas surrounding the permit area.

(d) Transport, backfill, and grade to ensure the impoundments are constructed only where it has been demonstrated to the satisfaction of the cabinet that all requirements of 405 KAR 1:160 have been met and that the impoundments have been approved by the cabinet as meeting the requirements of this chapter and all other applicable federal and state laws and regulations.

(4) Thick overburden areas. In strip mining operations where the volume of spoil is demonstrated to be more than sufficient to achieve the approximate original contour, operations shall be conducted to meet, at a minimum, the standards of this subsection.

(a) Transport, backfill, and grade all spoil and suitable wastes not required to achieve approximate original contour in the strip mining area to the lowest practicable grade.

(b) Deposit, backfill, and grade excess spoil and suitable wastes only within the permit area and dispose of such materials in conformance with this chapter.

(c) Transport, backfill, and grade excess spoil and suitable wastes to maintain the hydrologic balance in accordance with this chapter and to provide long-term stability.

(d) Transport, backfill, grade, and revegetate suitable wastes and excess spoil to achieve an ecologically sound land use compatible with the prevailing land uses in unmined areas surrounding the permit area.

(e) Eliminate all highwalls and depressions except as stated in Section 5 of this administrative regulation by backfilling with spoil and suitable waste materials.

Section 8. Use of Waste Materials as Fill. Before waste materials from a coal preparation or conversion facility or from other activities conducted outside the permit area are used for fill material, it must be demonstrated to the cabinet by hydrogeological means and chemical and physical analyses that these waste materials are suitable for use as fill material and that use of these materials will not adversely affect water quality, water flow, and vegetation; will not present hazards to public health and safety; and will not cause instability in the backfilled area.

Section 9. Covering and Stabilization. (1) All exposed coal seams remaining after mining and any acid-forming, toxic-forming, combustible materials, or any other waste materials identified by the cabinet that are exposed, used, or produced during mining shall be covered with a minimum of four (4) feet of nontoxic and noncombustible material; or, if necessary, treated to neutralize toxicity in order to prevent water pollution and sustained combustion, and to minimize adverse effects on plant growth and land uses. Acid-forming or toxic-forming material shall not be buried or stored in proximity to a drainage course so as to pose a threat of water pollution or otherwise violate the provisions of 405 KAR 1:160 with regard to protection of the hydrologic system.

(2) Backfilled materials shall be selectively placed and compacted wherever necessary to prevent leaching of acid-forming and toxic-forming materials into surface or subsurface waters and wherever necessary to ensure the stability of the backfilled materials. The method of compacting backfill mate-

rial and the design specifications shall be approved by the cabinet before the acid-forming or toxic-forming materials are covered.

Section 10. Grading along the contour. All final grading, preparation of overburden before replacement of topsoil, and placement of topsoil, in accordance with the provisions of 405 KAR 1:100 (topsoil handling), shall be done along the contour unless such grading would be hazardous to equipment operators. In all cases, grading, preparation, or placement shall be conducted in a manner which minimizes erosion and provides a surface for replacement of topsoil which will minimize slippage.

Section 11. Steep Slopes. All operations on steep slopes shall comply with the requirements of this administrative regulation and with the requirements of 405 KAR 1:230 of this chapter with regard to steep slope mining. Slopes of twenty (20) degrees or more shall be considered as steep slopes, and the cabinet may define such flatter slopes to be steep slopes as are necessary to achieve the purposes of this chapter.

Section 12. Mountaintop Removal. (1) The requirements of this administrative regulation with regard to backfilling and grading to achieve approximate original contour shall not apply to strip mining operations approved pursuant to 405 KAR 1:240.

(2) Where the entire coal seams in the upper part of a mountain, ridge or hill are mined by removing all of the overburden and some or all of the overburden is returned to the mined area, the provisions of this administrative regulation shall apply and the cabinet may require the retention of an outcrop barrier consisting of the toe of the coal seam and its associated overburden, of sufficient width to prevent slides and erosion. (4 Ky.R. 390; eff. 5-3-78; Am. 488; 5 Ky.R. 201; eff. 8-23-78; TAm eff. 8-9-2007.)